Two Channel Signal Converter/Isonoler/Transmitter, Factory Ranged

APD 2055

Channel 1: Bridge/Strain Gauge/Load Cell to DC

- Two Independent Channels with Full Isolation
- Zero and Span for Each Output
- Input and Output LoopTracker LEDs
- Output Test/Manual Override for Each Channel
- Built-In I/O Power Supplies

Applications
- Monitor Two Strain Gauges or Load Cells
- Convert/Isolate Dual Output Transmitters

Channel 1 Bridge Input Range
- Factory configured, specify sensor mV/V and mV range
- Sensor range: 0-1 mV to 0-2000 mV
- Millivolt output range is determined by the sensitivity of the sensor (mV/V) and the excitation voltage applied.
- mV/V sensitivity X excitation voltage = total mV range
- Input impedance: 1 MΩ minimum
- Input comm. mode rejection: 100 dB minimum

Channel 1 Excitation Voltage
- Range: 4 to 10 VDC factory set, specify
- Adjustment: ±10% via front potentiometer
- Maximum output: 10 VDC maximum at 30 mA
- Stability: ±0.01% per °C
- Designed for one 350 Ω (or greater) sensor

Channel 2 Bridge Input Range
- Factory configured, specify sensor mV/V and mV range
- Sensor range: 0-1 mV to 0-2000 mV
- Millivolt output range is determined by the sensitivity of the sensor (mV/V) and the excitation voltage applied.
- mV/V sensitivity X excitation voltage = total mV range
- Input impedance: 1 MΩ minimum
- Input comm. mode rejection: 100 dB minimum

Channel 2 Excitation Voltage
- Range: 4 to 10 VDC factory set, specify
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- Maximum output: 10 VDC maximum at 30 mA
- Stability: ±0.01% per °C
- Designed for one 350 Ω (or greater) sensor

LoopTracker
- Variable brightness LEDs indicate I/O levels for each channel

Channel 1 and Channel 2 Output Ranges
- Factory configured, specify for each output channel
- Voltage: 0-1 VDC to 0-10 VDC, 10 mA maximum, ±10% of 0-20 VDC with M19, M29, M39
- Bipolar Voltage: ±1 VDC to ±10 VDC
- Current: 0-1 mA to 0-25 mA, 4-20 mA
- 20 V compliance, 1000 Ω at 20 mA

Output Calibration
- Multi-turn front and span potentiometers for each output channel
- ±15% of span adjustment range typical

Output Characteristics
- Linearity: ±0.1% of span
- Temperature stability: Better than 0.04% span/°C
- Output ripple and noise: Less than 10 mVrms
- Isolation: Full 5-way, 1200 Vrms minimum
- Response Time: 70 milliseconds nominal
- Output Loop Power Supplies: 20 VDC nominal, regulated, 25 mA output for each channel
- May be selectively wired for sinking or sourcing mA output

Output Test
- Front buttons set each output to test level when pressed
- Each test level potentiometer adjustable 0-100% of span

Installation Environment
- Mount vertically to a 35 mm DIN rail
- For use in Pollution Degree 2 Environment
- IP 40 housing, requires installation inside an enclosure
- −10°C to +60°C operating ambient

Connectors
- Eight 4-terminal removable connectors, 14 AWG max wire size

Power
- 85-265 VAC, 50/60 Hz or 60-300 VDC, 6 W maximum
- D versions: 9-30 VDC or 10-32 VAC 50/60 Hz, 6 W maximum

DuoPak
- Input and Output LoopTracker
- Adjustable Output Test Function for Each Channel
- Zero and Span for Each Channel
- Input LoopTracker LED for Each Channel

DuoPak 2 Channel
- Strain-DC converter/isolator/transmitter
- 85-265 VAC, 50/60 Hz or 60-300 VDC
- 9-30 VDC or 10-32 VAC

API exclusive features include four LoopTracker LEDs (green for each input, red for each output) that vary in intensity with changes in the process input and output signals. These provide a quick visual picture of your process loop at all times and can greatly aid in saving time during initial startup and troubleshooting.

Output Test
- An API exclusive feature includes output test buttons for each channel to provide a fixed output (independent of the input) when held depressed.
- Terminals are also provided to operate the test functions remotely for each channel. This also allows use as a remote manual override to provide a temporary fixed output if desired.
- The test output level for each channel is potentiometer adjustable from 0 to 100% of the output span. The output test greatly aids in saving time during initial startup and/or troubleshooting.

How to Order
- Models are factory ranged. See I/O ranges above left.
- Ranges and options for each channel must be specified on order
- Channel 1 input range, excitation voltage
- Channel 2 input range, excitation voltage
- Channel 1 output range
- Channel 2 output range

Options and Accessories
- Options—add to end of model number
- Ranges and options for each channel must be specified on order
- Channel 1 I/O reversal (i.e. 20-4 mA out)
- Channel 2 I/O reversal (i.e. 20-4 mA out)
- Channel 1 and channel 2 I/O reversal
- Channel 1 high voltage output >10 V up to 20 V
- Channel 2 high voltage output >10 V up to 20 V
- Channel 1 and channel 2 high voltage output
- Conformal coating for moisture resistance
- Accessory—order as separate line item
- API BP4—Spare removable 4 terminal plug, black

Made in USA

Dimensions
1.78” W x 4.62” H x 4.81” D
45 mm W x 117 mm H x 4.81” D

Ce, RoHS, Lead Free

Applies the appropriate environmental and safety regulations

Certifications
- RoHS certification
- CE mark
- UL listing

API BP4—Spare removable 4 terminal plug, black

Universal Power Input

Two Channel Signal Converter/Iso/olator/Transmitter, Factory Ranged

APD 2055

Channel 2: Bridge/Strain Gauge/Load Cell to DC

Sink or Source mA Output for Each Channel

Adjustable Output Test Function for Each Channel

Zero and Span for Each Channel

Input LoopTracker LED for Each Channel

Custom I/O Ranges

Built-in Excitation Voltage for Strain Gauge Inputs

LoopTracker

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Universal Power Input
Mounting to a DIN Rail
Install module vertically on a 35 mm DIN rail in a protective enclosure away from heat sources. Do not block air flow. Allow 1" (25 mm) above and below housing vents for air circulation.
1. Tilt front of module down and position the lower spring clips against the bottom edge of DIN rail.
2. Push front of module upward until upper mount snaps into place.

Removal
Avoid shock hazards! Turn signal input, output, and power off.
1. Push up on bottom back of module.
2. Tilt front of module downward to release upper mount from top edge of DIN rail.
3. The module can now be removed from the DIN rail.

Calibration
Input and output ranges are factory pre-configured (at 24°C ±1°C). Front-mounted Zero and Span potentiometers for each channel can be used to compensate for load and load variations.
1. Apply power to the module and allow a minimum 30 minute warm up time.
2. Using an accurate voltmeter on terminals 18 and 20, and then 22 and 24, adjust the excitation voltage fine adjustment potentiometers to the strain gauge manufacturer’s recommended values.
3. Using an accurate calibration source, provide an input to the module equal to the minimum input required for the application.
4. Using an accurate measurement device for the output, adjust the Zero potentiometer for the exact minimum output desired. The Zero control should only be adjusted when the input signal is at its maximum. This will produce the corresponding minimum output signal. For example: 4 mA for a 4-20 mA output or –10 V for a ±10 V output.
5. Set the input at maximum, and then adjust the Span pot for the exact maximum output desired. The Span control should only be adjusted when the input signal is at its maximum. This will produce the corresponding maximum output signal. Example: for 4-20 mA output, the Span control will provide adjustment for the 20 mA or high end of the signal.
6. Repeat adjustments for both channels for maximum accuracy.

Output Test Function
When the Test button is pressed it will drive the output with a known good signal that can be used as a diagnostic aid during initial start-up or troubleshooting. When released, the output will return to normal.
Each Test Cal. potentiometer is factory set to approximately ±10% of the excitation voltage. They may optionally be externally wired for remote test operation or a manual override. See wiring diagram at right.

Operation
The APD 2055 accepts two stain gauge inputs and provides two optically isolated DC voltage or current outputs that are linearly related to the inputs.

Green LoopTracker® input LEDs provide a visual indication that each signal is being sensed by the input circuitry of the module. They also indicate the input signal strength by changing in intensity as the process changes from minimum to maximum. If an LED fails to illuminate, or fails to change in intensity as the process changes, check the module power or signal input wiring. Two red LoopTracker output LEDs provide a visual indication that the output signals are functioning. They become brighter as the input and each corresponding output change from minimum to maximum.

For a current output the red LED will only light if the output loop current path is complete. For either current or voltage outputs, failure to illuminate or a failure to change in intensity as the process changes may indicate a problem with the module power or signal output wiring. Note that it may be difficult to see the LEDs under bright lighting conditions.